

**From:** [John Garnham](#)  
**To:** [Ana Maria Maxey](#)  
**Subject:** FW: Air Compressors Missing Oil  
**Date:** Thursday, August 22, 2019 7:12:57 AM  
**Attachments:** [R-001044 \(0-101741 SN 025\).pdf](#)  
[R-001043 \(0-101741 SN 007\).pdf](#)

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**From:** Jim LaGuardia <jlaguar@caltel.com>  
**Sent:** Monday, June 11, 2018 6:20 PM  
**To:** John Garnham <JGarnha@bart.gov>  
**Subject:** FW: Air Compressors Missing Oil

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**From:** Pierre Alexandre Beaumont [[mailto:pierre\\_alexandre.beaumont@rail.bombardier.com](mailto:pierre_alexandre.beaumont@rail.bombardier.com)]  
**Sent:** Monday, June 11, 2018 2:35 PM  
**To:** Henry Kolesar; Jim LaGuardia  
**Subject:** Fwd: Air Compressors Missing Oil

Fyi on ASU.

Thanks

Pa

Sent from my Samsung Galaxy smartphone.

----- Original message -----

From: David Vallee <[david.vallee@rail.bombardier.com](mailto:david.vallee@rail.bombardier.com)>  
Date: 2018-06-11 5:16 PM (GMT-05:00)  
To: Doug Franz <[dfranz@matteicomp.com](mailto:dfranz@matteicomp.com)>, Pierre Alexandre Beaumont <[pierre\\_alexandre.beaumont@rail.bombardier.com](mailto:pierre_alexandre.beaumont@rail.bombardier.com)>, 'Tony Murgia' <[amurgia@matteicomp.com](mailto:amurgia@matteicomp.com)>, [bberlage@matteicomp.com](mailto:bberlage@matteicomp.com)  
Cc: Michael Lapointe <[michael.lapointe@rail.bombardier.com](mailto:michael.lapointe@rail.bombardier.com)>, Caroline Nadeau <[caroline.nadeau@rail.bombardier.com](mailto:caroline.nadeau@rail.bombardier.com)>, Jean Boucher <[jean.boucher@rail.bombardier.com](mailto:jean.boucher@rail.bombardier.com)>  
Subject: RE: Air Compressors Missing Oil

Hello Bruce, Doug

Thanks for your time this morning.

As discussed over the phone, we received the attached two (2) repair reports (R-001043 and R-001044) related to the Air Supply Unit P/N 0-101741.

Mainly, the air supply units were sent to Mattei because of oil leakage / issue. A failure analysis was requested for each unit.

From the information I have, both units were removed from cars 3004 and 4004 early February 2018 and shipped to Mattei early March 2018.

Both analysis specify that part of the cause of oil leakage / carry-over is due to misadjusted Minimum Pressure Valve (MPV). Also, the Discharge Valve was misadjusted and oil separator element might also be part of the cause.

My concern is that the Field Change Notice (FCN 17-005 / Minimum Pressure Valve setting to be adjusted) was released on September 2017 and that both units were already updated according to this notice prior the "oil leakage". Maybe the adjustment was not done correctly on these two (2) units.

The report corrective action specifies to repair the units and provides the analysis of the failure. Could Mattei review their corrective actions and advise? I want to ensure that any actions to limit oil leakage in the future are look at.

Corrective actions (suggestions):

- Confirm that the new MPV setting is part of the instructions at Mattei prior each delivery.
- I was informed that a video was created for training purpose regarding the MPV adjustment. Should the video be provided to our field technician?
- The maintenance plan schedule requests to replace the oil separator each 3600 hours of car revenue service. Based on field data, is it acceptable to ensure performance?
- Are the MPV and Discharge valve settings verification part of the maintenance plan?

Thanks,

David Vallee,  
Design Engineer, System Engineering  
Bombardier Transportation - North America

1101 Parent street,  
St-Bruno, QC.  
Canada, J3V 6E6

Tel. : (450) 441-2020 ext.: 6040  
[david.vallee@rail.bombardier.com](mailto:david.vallee@rail.bombardier.com)

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**De :** Doug Franz <[dfranz@matteicomp.com](mailto:dfranz@matteicomp.com)>

**Envoyé :** 1 juin 2018 16:58

**A :** Pierre Alexandre Beaumont <[pierre\\_alexandre.beaumont@rail.bombardier.com](mailto:pierre_alexandre.beaumont@rail.bombardier.com)>; 'Tony Murgia' <[amurgia@matteicomp.com](mailto:amurgia@matteicomp.com)>

**Cc :** David Vallee <[david.vallee@rail.bombardier.com](mailto:david.vallee@rail.bombardier.com)>; Michael Lapointe <[michael.lapointe@rail.bombardier.com](mailto:michael.lapointe@rail.bombardier.com)>; Caroline Nadeau

<[caroline.nadeau@rail.bombardier.com](mailto:caroline.nadeau@rail.bombardier.com)>; Jean Boucher <[jean.boucher@rail.bombardier.com](mailto:jean.boucher@rail.bombardier.com)>

**Objet :** RE: Air Compressors Missing Oil

All,

Thank you for your patience while we completed our analyses. Please find the repair reports attached.

Thank you.

-Doug

**Doug Franz**

Materials Manager

Mattei Transit Engineering

9635 Liberty Road, Suite E, Randallstown, MD 21133

Office: +410.521.7020 Fax: 410.521.7024

Email: [dfranz@matteicomp.com](mailto:dfranz@matteicomp.com) Web: [www.matteicomp.com/transit-engineering/](http://www.matteicomp.com/transit-engineering/)

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**From:** Pierre Alexandre Beaumont <[pierre\\_alexandre.beaumont@rail.bombardier.com](mailto:pierre_alexandre.beaumont@rail.bombardier.com)>

**Sent:** Friday, June 1, 2018 2:57 PM

**To:** Doug Franz <[dfranz@matteicomp.com](mailto:dfranz@matteicomp.com)>; 'Tony Murgia' <[amurgia@matteicomp.com](mailto:amurgia@matteicomp.com)>

**Cc:** David Vallee <[david.vallee@rail.bombardier.com](mailto:david.vallee@rail.bombardier.com)>; Michael Lapointe

<[michael.lapointe@rail.bombardier.com](mailto:michael.lapointe@rail.bombardier.com)>; Caroline Nadeau

<[caroline.nadeau@rail.bombardier.com](mailto:caroline.nadeau@rail.bombardier.com)>; Jean Boucher <[jean.boucher@rail.bombardier.com](mailto:jean.boucher@rail.bombardier.com)>

**Subject:** RE: Air Compressors Missing Oil

Hi Caroline,

We haven't hear from Mattei on this particular topic for over a month. BART is expecting a status for the ASU missing oil. Could you please contact them.

Thanks,

PA

Pierre Alexandre  
x6296

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**From:** Doug Franz <[dfranz@matteicomp.com](mailto:dfranz@matteicomp.com)>

**Sent:** 26 avril 2018 17:05

**To:** Pierre Alexandre Beaumont <[pierre\\_alexandre.beaumont@rail.bombardier.com](mailto:pierre_alexandre.beaumont@rail.bombardier.com)>; 'Tony Murgia' <[amurgia@matteicomp.com](mailto:amurgia@matteicomp.com)>

**Cc:** David Vallee <[david.vallee@rail.bombardier.com](mailto:david.vallee@rail.bombardier.com)>; Michael Lapointe <[michael.lapointe@rail.bombardier.com](mailto:michael.lapointe@rail.bombardier.com)>; Caroline Nadeau <[caroline.nadeau@rail.bombardier.com](mailto:caroline.nadeau@rail.bombardier.com)>

**Subject:** RE: Air Compressors Missing Oil

The shop has done their work. The information is on my desk to write up, and I will forward to Tony for review before we send it to the group.

-Doug

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**From:** Pierre Alexandre Beaumont <[pierre\\_alexandre.beaumont@rail.bombardier.com](mailto:pierre_alexandre.beaumont@rail.bombardier.com)>

**Sent:** Tuesday, April 24, 2018 11:12 PM

**To:** Tony Murgia <[amurgia@matteicomp.com](mailto:amurgia@matteicomp.com)>; 'Doug Franz' <[dfranz@matteicomp.com](mailto:dfranz@matteicomp.com)>

**Cc:** David Vallee <[david.vallee@rail.bombardier.com](mailto:david.vallee@rail.bombardier.com)>; Michael Lapointe <[michael.lapointe@rail.bombardier.com](mailto:michael.lapointe@rail.bombardier.com)>; Caroline Nadeau <[caroline.nadeau@rail.bombardier.com](mailto:caroline.nadeau@rail.bombardier.com)>

**Subject:** RE: Air Compressors Missing Oil

Hi Doud, Tony,

From our meeting with BART two weeks ago, we had an open item on the RCA for the two units that were missing oil. Did you had the chance to analyse these 2 units ?

Your feedback is appreciated

Pierre

Pierre Alexandre  
x6296

---

**From:** Tony Murgia <[amurgia@matteicomp.com](mailto:amurgia@matteicomp.com)>

**Sent:** 11 avril 2018 16:58

**To:** Pierre Alexandre Beaumont <[pierre\\_alexandre.beaumont@rail.bombardier.com](mailto:pierre_alexandre.beaumont@rail.bombardier.com)>; 'Doug Franz' <[dfranz@matteicomp.com](mailto:dfranz@matteicomp.com)>

**Cc:** David Vallee <[david.vallee@rail.bombardier.com](mailto:david.vallee@rail.bombardier.com)>; Michael Lapointe <[michael.lapointe@rail.bombardier.com](mailto:michael.lapointe@rail.bombardier.com)>; Caroline Nadeau <[caroline.nadeau@rail.bombardier.com](mailto:caroline.nadeau@rail.bombardier.com)>

**Subject:** RE: Air Compressors Missing Oil

Pierre;

Doug and I can be available for the 30 minutes meeting on the Air Compressor issue on Friday this week, 1200 noon EDT (0900 PDT).

Is this time OK for you?

In preparation for the meeting I have attached the original Bombardier R.C.A. on this issue. It includes our comments to the root cause analysis, corrective action, and remarks. The Field Modification Instruction referenced in the remarks section is also attached.

Regards,

**Tony Murgia**

Program Manager

**Mattei Transit Engineering**

9635 Liberty Road, Suite E, Randallstown, MD 21133

Office: +410.521.7020 Fax: 410.521.7024

Email: [amurgia@matteicomp.com](mailto:amurgia@matteicomp.com) Web: [www.matteicomp.com/transit-engineering/](http://www.matteicomp.com/transit-engineering/)

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**From:** Pierre Alexandre Beaumont <[pierre\\_alexandre.beaumont@rail.bombardier.com](mailto:pierre_alexandre.beaumont@rail.bombardier.com)>

**Sent:** Tuesday, April 10, 2018 10:37 PM

**To:** Doug Franz <[dfranz@matteicomp.com](mailto:dfranz@matteicomp.com)>; Tony Murgia <[amurgia@matteicomp.com](mailto:amurgia@matteicomp.com)>

**Cc:** David Vallee <[david.vallee@rail.bombardier.com](mailto:david.vallee@rail.bombardier.com)>; Michael Lapointe

<[michael.lapointe@rail.bombardier.com](mailto:michael.lapointe@rail.bombardier.com)>; Caroline Nadeau

<[caroline.nadeau@rail.bombardier.com](mailto:caroline.nadeau@rail.bombardier.com)>

**Subject:** RE: Air Compressors Missing Oil

Hello Tony, Doug

BART is asking for a 30 minutes meeting on the Air Compressor issue that we had in San Francisco. I haven't seen a reply to that email.

Could you please tell me your availabilities on Thursday or Friday this week?

Thanks

Pierre Alexandre  
x6296

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**From:** Pierre Alexandre Beaumont

**Sent:** 3 avril 2018 12:58

**To:** 'Doug Franz' <[dfranz@matteicomp.com](mailto:dfranz@matteicomp.com)>

**Cc:** David Vallee <[david.vallee@rail.bombardier.com](mailto:david.vallee@rail.bombardier.com)>; Michael Lapointe  
<[michael.lapointe@rail.bombardier.com](mailto:michael.lapointe@rail.bombardier.com)>; Caroline Nadeau

<[caroline.nadeau@rail.bombardier.com](mailto:caroline.nadeau@rail.bombardier.com)>; Tony Murgia <[amurgia@matteicomp.com](mailto:amurgia@matteicomp.com)>

**Subject:** RE: Air Compressors Missing Oil

Thanks Doug,

Hi Tony,

Does Thursday or Friday at 11h (EST) is good for you to discuss with BART ?

Thanks

Pierre Alexandre  
x6296

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**From:** Doug Franz [<mailto:dfranz@matteicomp.com>]

**Sent:** 30 mars 2018 10:30

**To:** Pierre Alexandre Beaumont <[pierre\\_alexandre.beaumont@rail.bombardier.com](mailto:pierre_alexandre.beaumont@rail.bombardier.com)>

**Cc:** David Vallee <[david.vallee@rail.bombardier.com](mailto:david.vallee@rail.bombardier.com)>; Michael Lapointe

<[michael.lapointe@rail.bombardier.com](mailto:michael.lapointe@rail.bombardier.com)>; Caroline Nadeau

<[caroline.nadeau@rail.bombardier.com](mailto:caroline.nadeau@rail.bombardier.com)>; Tony Murgia <[amurgia@matteicomp.com](mailto:amurgia@matteicomp.com)>

**Subject:** Re: Air Compressors Missing Oil

Pierre, this discussion has reached the limit of my knowledge. I must defer future discussions to Tony Murgia, our Engineering Manager. Thank you.

Doug Franz  
Materials Manager  
Mattei Transit Engineering  
9635 Liberty Road, Suite E, Randallstown, MD 21133  
Office +410.521.7020 Fax 410.521.7024  
Email: [dfranz@matteicomp.com](mailto:dfranz@matteicomp.com) Web: [www.matteicomp.com/transit-engineering/](http://www.matteicomp.com/transit-engineering/)

On Mar 29, 2018, at 10:07 PM, Pierre Alexandre Beaumont <[pierre\\_alexandre.beaumont@rail.bombardier.com](mailto:pierre_alexandre.beaumont@rail.bombardier.com)> wrote:

Hi Doug,

Would you be available for a 30min conf call with our customer next week. I've attached the latest question in this email, it will be easier just to have a discussion.

Suggested time would be Thursday or Friday at 11h (EST)

Let me know if you are ok,

Thanks

Pierre Alexandre  
x6296

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**From:** Doug Franz [<mailto:dfranz@matteicomp.com>]  
**Sent:** 27 mars 2018 14:46  
**To:** Pierre Alexandre Beaumont <[pierre\\_alexandre.beaumont@rail.bombardier.com](mailto:pierre_alexandre.beaumont@rail.bombardier.com)>;  
Gabriel Forget <[gabriel.forget@rail.bombardier.com](mailto:gabriel.forget@rail.bombardier.com)>; Sharon Simpson  
<[sharon.simpson@rail.bombardier.com](mailto:sharon.simpson@rail.bombardier.com)>; Michael Lapointe  
<[michael.lapointe@rail.bombardier.com](mailto:michael.lapointe@rail.bombardier.com)>; Denis Arsenault  
<[denis.arsenault@rail.bombardier.com](mailto:denis.arsenault@rail.bombardier.com)>; Janick Lavoie  
<[janick.lavoie@rail.bombardier.com](mailto:janick.lavoie@rail.bombardier.com)>; Richard Couture  
<[richard.couture@rail.bombardier.com](mailto:richard.couture@rail.bombardier.com)>  
**Cc:** Caroline Nadeau <[caroline.nadeau@rail.bombardier.com](mailto:caroline.nadeau@rail.bombardier.com)>  
**Subject:** RE: Air Compressors Missing Oil

Pierre, I appreciate that your customer is asking questions.

The maximum pressure output by the compressor is set at 147 psi.

There is a valve inside the compressor that is spring-loaded normally closed, that opens when the pressure inside the compressor reaches a set value. It's called the Minimum Pressure Valve (MPV). This value was originally set to 110 psi.

When the dryer on the air supply unit purges, the pressure within the compressor drops from the output pressure to the MPV pressure very quickly. This coincides with a rush of air from the compressor into the dryer. This rush of air from the compressor was overwhelming the built-in oil/air separator, and oil was passing out of the compressor along with the air. The oil would appear in the dryer desiccant canisters and in the air supply unit in the area around the silencers.

By increasing the setting of the MPV as part of our FCN 17-005, we are now setting the MPV at 120 psi. Now, when the dryer purges, the compressor experiences a 27 psi pressure drop instead of a 37 psi pressure drop. This is enough to greatly reduce the amount of air that rushes out of the compressor with each dryer purge. The oil/air separator is able to do its job, and everything works much better.

Thank you.

**Doug Franz**  
Materials Manager

**Mattei Transit Engineering**

9635 Liberty Road, Suite E, Randallstown, MD 21133

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Email: [dfranz@matteicomp.com](mailto:dfranz@matteicomp.com) Web: [www.matteicomp.com/transit-engineering/](http://www.matteicomp.com/transit-engineering/)

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**From:** Pierre Alexandre Beaumont

[<pierre\\_alexandre.beaumont@rail.bombardier.com>](mailto:pierre_alexandre.beaumont@rail.bombardier.com)

**Sent:** Tuesday, March 27, 2018 10:14 AM

**To:** Doug Franz <[dfranz@matteicomp.com](mailto:dfranz@matteicomp.com)>; Gabriel Forget

<[gabriel.forget@rail.bombardier.com](mailto:gabriel.forget@rail.bombardier.com)>; Sharon Simpson

<[sharon.simpson@rail.bombardier.com](mailto:sharon.simpson@rail.bombardier.com)>; Michael Lapointe

<[michael.lapointe@rail.bombardier.com](mailto:michael.lapointe@rail.bombardier.com)>; Denis Arsenault

<[denis.arsenault@rail.bombardier.com](mailto:denis.arsenault@rail.bombardier.com)>; Janick Lavoie

<[janick.lavoie@rail.bombardier.com](mailto:janick.lavoie@rail.bombardier.com)>; Richard Couture

<[richard.couture@rail.bombardier.com](mailto:richard.couture@rail.bombardier.com)>

**Cc:** Caroline Nadeau <[caroline.nadeau@rail.bombardier.com](mailto:caroline.nadeau@rail.bombardier.com)>

**Subject:** RE: Air Compressors Missing Oil

Hi Doug,

We presented the repair report to the customer and they need more explanation on how a low cut in pressure could make an oil leak. Could you please provide additional information &

Thanks

PA

Pierre Alexandre

x6296

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**From:** Doug Franz [<mailto:dfranz@matteicomp.com>]

**Sent:** 7 mars 2018 12:29

**To:** Gabriel Forget <[gabriel.forget@rail.bombardier.com](mailto:gabriel.forget@rail.bombardier.com)>; Sharon Simpson

<[sharon.simpson@rail.bombardier.com](mailto:sharon.simpson@rail.bombardier.com)>; Michael Lapointe

<[michael.lapointe@rail.bombardier.com](mailto:michael.lapointe@rail.bombardier.com)>; Denis Arsenault

<[denis.arsenault@rail.bombardier.com](mailto:denis.arsenault@rail.bombardier.com)>; Pierre Alexandre Beaumont

<[pierre\\_alexandre.beaumont@rail.bombardier.com](mailto:pierre_alexandre.beaumont@rail.bombardier.com)>; Janick Lavoie

<[janick.lavoie@rail.bombardier.com](mailto:janick.lavoie@rail.bombardier.com)>; Richard Couture  
<[richard.couture@rail.bombardier.com](mailto:richard.couture@rail.bombardier.com)>  
**Cc:** Caroline Nadeau <[caroline.nadeau@rail.bombardier.com](mailto:caroline.nadeau@rail.bombardier.com)>  
**Subject:** RE: Air Compressors Missing Oil

Thank you, Gabriel.

I see that I omitted some text on the internal inspection area of R-001030 that the minimum pressure valve was set too low, causing oil to pass to the dryer. In other words, FCN 17-005 had not been implemented. I have re-written the report to include that information.

The torn resilient mount was just an observation from the technician doing the work and is unrelated to the failure that brought the machine back to us. A root cause of that failure would require information from BT on processes to install and remove air supply units from cars and the forces the air supply unit was exposed to while installed. I do not plan to address this unless you need me to.

For R-001026, the internal inspection showed that the discharge valve was set improperly. That led to oil passing to the air intake at a higher volume than the equipment is designed for, which led to the saturation of the intake hose and filters. I made the connection more explicit.

Please review the attached reports and let me know if they are adequate.

Thank you.

-Doug

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**From:** Gabriel Forget <[gabriel.forget@rail.bombardier.com](mailto:gabriel.forget@rail.bombardier.com)>  
**Sent:** Wednesday, March 7, 2018 11:56 AM  
**To:** Doug Franz <[dfranz@matteicomp.com](mailto:dfranz@matteicomp.com)>; Sharon Simpson <[sharon.simpson@rail.bombardier.com](mailto:sharon.simpson@rail.bombardier.com)>; Michael Lapointe <[michael.lapointe@rail.bombardier.com](mailto:michael.lapointe@rail.bombardier.com)>; Denis Arsenault <[denis.arsenault@rail.bombardier.com](mailto:denis.arsenault@rail.bombardier.com)>; Pierre Alexandre Beaumont <[pierre\\_alexandre.beaumont@rail.bombardier.com](mailto:pierre_alexandre.beaumont@rail.bombardier.com)>; Janick Lavoie <[janick.lavoie@rail.bombardier.com](mailto:janick.lavoie@rail.bombardier.com)>; Richard Couture <[richard.couture@rail.bombardier.com](mailto:richard.couture@rail.bombardier.com)>  
**Cc:** Caroline Nadeau <[caroline.nadeau@rail.bombardier.com](mailto:caroline.nadeau@rail.bombardier.com)>  
**Subject:** RE: Air Compressors Missing Oil

Hi Doug,

Thanks for sharing these repair report.

Unfortunately, these document cannot be use as RCA reports.

**RCA should identify the root cause of the failure.**

As an example, on unit report R-001030, you replaced

1. 0-101679 desiccant canister (qty 2)
2. 6-000167 O-Ring (qty 2)
3. 6-000168 O-Ring (qty 2)
4. 6-000206 resilient mount

The question is why did you had to replace these parts?

What cause these part to fail?

RCA are intended to identify design, workmanship or maintenance issues that would lead of having defects sooner than expected.

Please resubmit RCA report for these unit.

Should you have any question, let me know.

Gabriel Forget, P.Eng  
Manager, Product Introduction – BART  
Bombardier Transportation Americas (BT-AME)  
Tel: +1-415-516-8822

---

**From:** Doug Franz [<mailto:dfranz@matteicomp.com>]

**Sent:** Wednesday, March 07, 2018 8:33 AM

**To:** Sharon Simpson <[sharon.simpson@rail.bombardier.com](mailto:sharon.simpson@rail.bombardier.com)>; Michael Lapointe <[michael.lapointe@rail.bombardier.com](mailto:michael.lapointe@rail.bombardier.com)>; Denis Arsenault <[denis.arsenault@rail.bombardier.com](mailto:denis.arsenault@rail.bombardier.com)>; Pierre Alexandre Beaumont <[pierre\\_alexandre.beaumont@rail.bombardier.com](mailto:pierre_alexandre.beaumont@rail.bombardier.com)>; Janick Lavoie <[janick.lavoie@rail.bombardier.com](mailto:janick.lavoie@rail.bombardier.com)>; Richard Couture <[richard.couture@rail.bombardier.com](mailto:richard.couture@rail.bombardier.com)>

**Cc:** Caroline Nadeau <[caroline.nadeau@rail.bombardier.com](mailto:caroline.nadeau@rail.bombardier.com)>; Gabriel Forget <[gabriel.forget@rail.bombardier.com](mailto:gabriel.forget@rail.bombardier.com)>

**Subject:** RE: Air Compressors Missing Oil

Sharon and company,

Please find attached our report of the repairs for two air supply units we just finished. This is our standard repair report that we supply after every repair is complete. We don't always provide so many pictures, but today I had them so I thought it would not hurt to include them.

As Sharon said, please let me know if this will suit your needs for the RCA mentioned below.

I just tracked the two air supply units that left your facility on 3/1. They are due here on Monday 3/12.

Thank you.

-Doug

**Doug Franz**

Materials Manager

**Mattei Transit Engineering**

9635 Liberty Road, Suite E, Randallstown, MD 21133

Office: +410.521.7020 Fax: 410.521.7024

Email: [dfranz@matteicomp.com](mailto:dfranz@matteicomp.com) Web: [www.matteicomp.com/transit-engineering/](http://www.matteicomp.com/transit-engineering/)

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**From:** Sharon Simpson <[sharon.simpson@rail.bombardier.com](mailto:sharon.simpson@rail.bombardier.com)>

**Sent:** Wednesday, March 7, 2018 10:39 AM

**To:** Michael Lapointe <[michael.lapointe@rail.bombardier.com](mailto:michael.lapointe@rail.bombardier.com)>; Denis Arsenault

<[denis.arsenault@rail.bombardier.com](mailto:denis.arsenault@rail.bombardier.com)>; Pierre Alexandre Beaumont

<[pierre\\_alexandre.beaumont@rail.bombardier.com](mailto:pierre_alexandre.beaumont@rail.bombardier.com)>; Janick Lavoie

<[janick.lavoie@rail.bombardier.com](mailto:janick.lavoie@rail.bombardier.com)>; Richard Couture

<[richard.couture@rail.bombardier.com](mailto:richard.couture@rail.bombardier.com)>; Doug Franz <[dfranz@matteicomp.com](mailto:dfranz@matteicomp.com)>

**Cc:** Caroline Nadeau <[caroline.nadeau@rail.bombardier.com](mailto:caroline.nadeau@rail.bombardier.com)>; Gabriel Forget

<[gabriel.forget@rail.bombardier.com](mailto:gabriel.forget@rail.bombardier.com)>

**Subject:** RE: Air Compressors Missing Oil

Hello Michael,

Yes we were able to ship the ASU's out on 3/1/18. Tracking is ABF 153502815. It hasn't arrived at Mattei as of yet. I just spoke to Doug Franz and he is sending me a RCA he has done on a previous Unit so I can send to everyone for review and see if this report will have enough detail for the 2 Units he is waiting for. If not we need to give him a list of information we are looking for on the report.

Thank you

Sharon Simpson

**From:** Michael Lapointe  
**Sent:** Wednesday, March 07, 2018 7:12 AM  
**To:** Denis Arsenault <[denis.arsenault@rail.bombardier.com](mailto:denis.arsenault@rail.bombardier.com)>; Pierre Alexandre Beaumont <[pierre\\_alexandre.beaumont@rail.bombardier.com](mailto:pierre_alexandre.beaumont@rail.bombardier.com)>; Janick Lavoie <[janick.lavoie@rail.bombardier.com](mailto:janick.lavoie@rail.bombardier.com)>; Richard Couture <[richard.couture@rail.bombardier.com](mailto:richard.couture@rail.bombardier.com)>; Doug Franz <[dfranz@matteicomp.com](mailto:dfranz@matteicomp.com)>  
**Cc:** Caroline Nadeau <[caroline.nadeau@rail.bombardier.com](mailto:caroline.nadeau@rail.bombardier.com)>; Gabriel Forget <[gabriel.forget@rail.bombardier.com](mailto:gabriel.forget@rail.bombardier.com)>; Sharon Simpson <[sharon.simpson@rail.bombardier.com](mailto:sharon.simpson@rail.bombardier.com)>  
**Subject:** RE: Air Compressors Missing Oil

Following up on this one.

Did the units ever make it to MATTEI? If so, was MATTEI able to make some progress on the RCA?

Regards,

*Michaël Lapointe* P.Eng. ,PMP.  
**Vehicle Sub-Systems Engineering**  
**Train Motion & Control Vehicle Engineer**  
Bombardier Transportation AME  
(450)441-2020 #6413  
[Michael.lapointe@rail.bombardier.com](mailto:Michael.lapointe@rail.bombardier.com)

---

**From:** Denis Arsenault  
**Sent:** Monday, February 19, 2018 6:14 PM  
**To:** Pierre Alexandre Beaumont <[pierre\\_alexandre.beaumont@rail.bombardier.com](mailto:pierre_alexandre.beaumont@rail.bombardier.com)>; Janick Lavoie <[janick.lavoie@rail.bombardier.com](mailto:janick.lavoie@rail.bombardier.com)>; Richard Couture <[richard.couture@rail.bombardier.com](mailto:richard.couture@rail.bombardier.com)>; Michael Lapointe <[michael.lapointe@rail.bombardier.com](mailto:michael.lapointe@rail.bombardier.com)>; Doug Franz <[dfranz@matteicomp.com](mailto:dfranz@matteicomp.com)>  
**Cc:** Caroline Nadeau <[caroline.nadeau@rail.bombardier.com](mailto:caroline.nadeau@rail.bombardier.com)>; Gabriel Forget <[gabriel.forget@rail.bombardier.com](mailto:gabriel.forget@rail.bombardier.com)>; Sharon Simpson <[sharon.simpson@rail.bombardier.com](mailto:sharon.simpson@rail.bombardier.com)>  
**Subject:** Re: Air Compressors Missing Oil

Not yet. This week.

Sharon: when shipped email the tracking number.

Thanks

----- Original message -----

From: Pierre Alexandre Beaumont  
<[pierre\\_alexandre.beaumont@rail.bombardier.com](mailto:pierre_alexandre.beaumont@rail.bombardier.com)>  
Date: 2/19/18 14:40 (GMT-08:00)  
To: Janick Lavoie <[janick.lavoie@rail.bombardier.com](mailto:janick.lavoie@rail.bombardier.com)>, Richard Couture  
<[richard.couture@rail.bombardier.com](mailto:richard.couture@rail.bombardier.com)>, Michael Lapointe  
<[michael.lapointe@rail.bombardier.com](mailto:michael.lapointe@rail.bombardier.com)>, Doug Franz <[dfranz@matteicomp.com](mailto:dfranz@matteicomp.com)>,  
Denis Arsenault <[denis.arsenault@rail.bombardier.com](mailto:denis.arsenault@rail.bombardier.com)>  
Cc: Caroline Nadeau <[caroline.nadeau@rail.bombardier.com](mailto:caroline.nadeau@rail.bombardier.com)>, Gabriel Forget  
<[gabriel.forget@rail.bombardier.com](mailto:gabriel.forget@rail.bombardier.com)>  
Subject: RE: Air Compressors Missing Oil

Hi All,

Denis, were the 2ASUs sent back to MATTEI ?

Michael, if yes can you please follow up on the root cause analysis.

Thanks

Pierre Alexandre  
x6296

---

**From:** Janick Lavoie  
**Sent:** 8 février 2018 12:45  
**To:** Richard Couture <[richard.couture@rail.bombardier.com](mailto:richard.couture@rail.bombardier.com)>; Michael Lapointe  
<[michael.lapointe@rail.bombardier.com](mailto:michael.lapointe@rail.bombardier.com)>; Doug Franz <[dfranz@matteicomp.com](mailto:dfranz@matteicomp.com)>;  
Denis Arsenault <[denis.arsenault@rail.bombardier.com](mailto:denis.arsenault@rail.bombardier.com)>  
**Cc:** Caroline Nadeau <[ext.caroline.nadeau@rail.bombardier.com](mailto:ext.caroline.nadeau@rail.bombardier.com)>; Pierre Alexandre  
Beaumont <[pierre\\_alexandre.beaumont@rail.bombardier.com](mailto:pierre_alexandre.beaumont@rail.bombardier.com)>; Gabriel Forget  
<[gabriel.forget@rail.bombardier.com](mailto:gabriel.forget@rail.bombardier.com)>  
**Subject:** RE: Air Compressors Missing Oil

3004 – s/N 07, mod level 01, latest Version design 02

*Regards*

*Janick Lavoie*

Project QA Configuration management  
(450)441-2020 x6845  
St-Bruno

---

**De :** Richard Couture  
**Envoyé :** 8 février 2018 15:20  
**À :** Michael Lapointe <[michael.lapointe@rail.bombardier.com](mailto:michael.lapointe@rail.bombardier.com)>; Doug Franz  
<[dfranz@matteicomp.com](mailto:dfranz@matteicomp.com)>; Denis Arsenault <[denis.arsenault@rail.bombardier.com](mailto:denis.arsenault@rail.bombardier.com)>

**Cc :** Caroline Nadeau <[ext.caroline.nadeau@rail.bombardier.com](mailto:ext.caroline.nadeau@rail.bombardier.com)>; Pierre Alexandre Beaumont <[pierre\\_alexandre.beaumont@rail.bombardier.com](mailto:pierre_alexandre.beaumont@rail.bombardier.com)>; Gabriel Forget <[gabriel.forget@rail.bombardier.com](mailto:gabriel.forget@rail.bombardier.com)>; Janick Lavoie <[janick.lavoie@rail.bombardier.com](mailto:janick.lavoie@rail.bombardier.com)>

**Objet :** RE: Air Compressors Missing Oil

Hello Janick

What is the mod level of the ASU in as Design ?

Gabriel ...Denis...

What is the mod level of this unit on car 3004 serial number 11 ?

Richard

---

**From:** Michael Lapointe

**Sent:** Thursday, February 08, 2018 15:13

**To:** Doug Franz <[dfranz@matteicomp.com](mailto:dfranz@matteicomp.com)>; Richard Couture <[richard.couture@rail.bombardier.com](mailto:richard.couture@rail.bombardier.com)>; Denis Arsenault <[denis.arsenault@rail.bombardier.com](mailto:denis.arsenault@rail.bombardier.com)>

**Cc:** Caroline Nadeau <[ext.caroline.nadeau@rail.bombardier.com](mailto:ext.caroline.nadeau@rail.bombardier.com)>; Pierre Alexandre Beaumont <[pierre\\_alexandre.beaumont@rail.bombardier.com](mailto:pierre_alexandre.beaumont@rail.bombardier.com)>; Gabriel Forget <[gabriel.forget@rail.bombardier.com](mailto:gabriel.forget@rail.bombardier.com)>

**Subject:** RE: Air Compressors Missing Oil

My bad, completely missed that.

The S/N installed on 3004 is #11.

Regards,

*Michaël Lapointe* P.Eng. ,PMP.

**Vehicle Sub-Systems Engineering**  
**Train Motion & Control Vehicle Engineer**

Bombardier Transportation AME

(450)441-2020 #6413

[Michael.lapointe@rail.bombardier.com](mailto:Michael.lapointe@rail.bombardier.com)

---

**From:** Doug Franz [<mailto:dfranz@matteicomp.com>]

**Sent:** Thursday, February 08, 2018 3:06 PM

**To:** Michael Lapointe <[michael.lapointe@rail.bombardier.com](mailto:michael.lapointe@rail.bombardier.com)>; Richard Couture <[richard.couture@rail.bombardier.com](mailto:richard.couture@rail.bombardier.com)>; Denis Arsenault <[denis.arsenault@rail.bombardier.com](mailto:denis.arsenault@rail.bombardier.com)>

**Cc:** Caroline Nadeau <[ext.caroline.nadeau@rail.bombardier.com](mailto:ext.caroline.nadeau@rail.bombardier.com)>; Pierre Alexandre

Beaumont <[pierre\\_alexandre.beaumont@rail.bombardier.com](mailto:pierre_alexandre.beaumont@rail.bombardier.com)>; Gabriel Forget <[gabriel.forget@rail.bombardier.com](mailto:gabriel.forget@rail.bombardier.com)>  
**Subject:** RE: Air Compressors Missing Oil

Michael,

Frank Kiraly from BART ended his message at the bottom of this chain with "*BART believes both compressors should be replaced and an evaluation of the internal components performed.*"

So, I assumed you would be sending two machines back from cars 3004 and 4004. There is one air supply unit per car.

Our records show ASU number 25 had the FCN implemented by our technician in November.

Thank you.

-Doug

---

**From:** Michael Lapointe [<mailto:michael.lapointe@rail.bombardier.com>]  
**Sent:** Thursday, February 8, 2018 2:55 PM  
**To:** Doug Franz <[dfranz@matteicomp.com](mailto:dfranz@matteicomp.com)>; Richard Couture <[richard.couture@rail.bombardier.com](mailto:richard.couture@rail.bombardier.com)>; Denis Arsenault <[denis.arsenault@rail.bombardier.com](mailto:denis.arsenault@rail.bombardier.com)>  
**Cc:** Caroline Nadeau <[ext.caroline.nadeau@rail.bombardier.com](mailto:ext.caroline.nadeau@rail.bombardier.com)>; Pierre Alexandre Beaumont <[pierre\\_alexandre.beaumont@rail.bombardier.com](mailto:pierre_alexandre.beaumont@rail.bombardier.com)>; Gabriel Forget <[gabriel.forget@rail.bombardier.com](mailto:gabriel.forget@rail.bombardier.com)>  
**Subject:** RE: Air Compressors Missing Oil

Hey Doug,

Thanks for the lightning-quick reply. It is well appreciated.

We can certainly send the units back.

According to Maximo, the Serial Number of the ASU on 4004 is #25. The system shows only 1 ASU. Are we supposed to have 2? (I am not familiar with that car yet).

[@Denis Arsenault](#) Can you and your team answer Doug's questions? I do not have visibility on what he's asking. We'll also need to ship the units out using the provided RMA numbers below, assuming that you have units on hand to replace them.

[@Richard Couture](#) Please make sure the RCA is opened, and task them to me. I will approve them today. (I may not have BART accesses in the RCA database yet. Please make sure I do have them).

Regards,

*Michaël Lapointe* P.Eng. ,PMP.

**Vehicle Sub-Systems Engineering**  
**Train Motion & Control Vehicle Engineer**  
Bombardier Transportation AME  
(450)441-2020 #6413  
[Michael.lapointe@rail.bombardier.com](mailto:Michael.lapointe@rail.bombardier.com)

---

**From:** Doug Franz [<mailto:dfranz@matteicomp.com>]  
**Sent:** Thursday, February 08, 2018 2:30 PM  
**To:** Michael Lapointe <[michael.lapointe@rail.bombardier.com](mailto:michael.lapointe@rail.bombardier.com)>  
**Cc:** Caroline Nadeau <[ext.caroline.nadeau@rail.bombardier.com](mailto:ext.caroline.nadeau@rail.bombardier.com)>; Pierre Alexandre Beaumont <[pierre\\_alexandre.beaumont@rail.bombardier.com](mailto:pierre_alexandre.beaumont@rail.bombardier.com)>; Richard Couture <[richard.couture@rail.bombardier.com](mailto:richard.couture@rail.bombardier.com)>; Gabriel Forget <[gabriel.forget@rail.bombardier.com](mailto:gabriel.forget@rail.bombardier.com)>; Denis Arsenault <[denis.arsenault@rail.bombardier.com](mailto:denis.arsenault@rail.bombardier.com)>  
**Subject:** RE: Air Compressors Missing Oil

Michael, I can help you with your request. I am not an engineer, but I issue RMAs and offer a bit of technical support.

If a compressor runs low on oil, it will lessen its ability to dissipate heat, which can cause a number of problems. These two compressors may have still had enough oil to avoid any damage, but we won't know until we open them up.

We definitely want these two units back. Please return them to us using RMA numbers R-001043 and R-001044.

Meanwhile, a few other things mentioned are troubling me:

1. The thread below does not mention a fault or alarm recorded. Was there any indicator on the vehicle of trouble with the air supply unit?
2. Do you know if these units had Minimum Pressure Valve adjusted to 120 psi, as directed in our FCN 17-005 issued September 6? That FCN was written to reduce oil carry-over.

If you could please send me the serial numbers of the air supply units before their arrival, that would help me greatly.

Thank you.

-Doug

**Doug Franz**

Materials Manager

**Mattei Transit Engineering**

9635 Liberty Road, Suite E, Randallstown, MD 21133

Office: +410.521.7020 Fax: 410.521.7024

Email: [dfranz@matteicomp.com](mailto:dfranz@matteicomp.com) Web: [www.matteicomp.com/transit-engineering/](http://www.matteicomp.com/transit-engineering/)

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---

**From:** Denis Arsenault [<mailto:denis.arsenault@rail.bombardier.com>]

**Sent:** Thursday, February 8, 2018 2:11 PM

**To:** Michael Lapointe <[michael.lapointe@rail.bombardier.com](mailto:michael.lapointe@rail.bombardier.com)>; Doug Franz <[dfranz@matteicomp.com](mailto:dfranz@matteicomp.com)>

**Cc:** Caroline Nadeau <[ext.caroline.nadeau@rail.bombardier.com](mailto:ext.caroline.nadeau@rail.bombardier.com)>; Pierre Alexandre Beaumont <[pierre\\_alexandre.beaumont@rail.bombardier.com](mailto:pierre_alexandre.beaumont@rail.bombardier.com)>; Richard Couture <[richard.couture@rail.bombardier.com](mailto:richard.couture@rail.bombardier.com)>; Gabriel Forget <[gabriel.forget@rail.bombardier.com](mailto:gabriel.forget@rail.bombardier.com)>

**Subject:** RE: Air Compressors Missing Oil

+ Gabriel.

---

**From:** Michael Lapointe

**Sent:** Thursday, February 08, 2018 11:08 AM

**To:** Doug Franz <[dfranz@matteicomp.com](mailto:dfranz@matteicomp.com)>

**Cc:** Caroline Nadeau <[ext.caroline.nadeau@rail.bombardier.com](mailto:ext.caroline.nadeau@rail.bombardier.com)>; Pierre Alexandre Beaumont <[pierre\\_alexandre.beaumont@rail.bombardier.com](mailto:pierre_alexandre.beaumont@rail.bombardier.com)>; Denis Arsenault <[denis.arsenault@rail.bombardier.com](mailto:denis.arsenault@rail.bombardier.com)>; Richard Couture <[richard.couture@rail.bombardier.com](mailto:richard.couture@rail.bombardier.com)>

**Subject:** FW: Air Compressors Missing Oil

Hi Doug,

I am newly involved on the BART project, so maybe I am not reaching out to the correct person. Could you please kindly forward my e-mail to the appropriate person at MATTEI who can provide support with the issue described below?

In a nutshell, it looks like an ASU is leaking oil. Could you please let us know what are the consequences of running on low oil? Should the unit be replaced?

We can send the unit to MATTEI under RCA for analysis.

Please advise,

*Michaël Lapointe* P.Eng. ,PMP.  
**Vehicle Sub-Systems Engineering**  
**Train Motion & Control Vehicle Engineer**  
Bombardier Transportation AME  
(450)441-2020 #6413  
[Michael.lapointe@rail.bombardier.com](mailto:Michael.lapointe@rail.bombardier.com)

---

**From:** Virginie Leblond  
**Sent:** 8 février 2018 13:34  
**To:** Pierre Alexandre Beaumont <[pierre\\_alexandre.beaumont@rail.bombardier.com](mailto:pierre_alexandre.beaumont@rail.bombardier.com)>  
**Subject:** TR: Air Compressors Missing Oil

FYI

Virginie Leblond  
Bombardier Transportation  
BART- Project Manager  
[Virginie.leblond@rail.bombardier.com](mailto:Virginie.leblond@rail.bombardier.com)  
Office: 450-441-8133  
Mobile:514-462-2928

---

**De :** Frank Kiraly [<mailto:fkiraly@bart.gov>]  
**Envoyé :** 7 février 2018 14:05  
**À :** Denis Arsenault <[denis.arsenault@rail.bombardier.com](mailto:denis.arsenault@rail.bombardier.com)>  
**Cc :** John Garnham <[JGarnha@bart.gov](mailto:JGarnha@bart.gov)>; 'Jim LaGuardia ([jlaguar@caltel.com](mailto:jlaguar@caltel.com))'  
<[jlaguar@caltel.com](mailto:jlaguar@caltel.com)>; Benjamin Holland <[bholland@bart.gov](mailto:bholland@bart.gov)>; Henry Kolesar  
<[hkolesa@bart.gov](mailto:hkolesa@bart.gov)>; Virginie Leblond <[virginie.leblond@rail.bombardier.com](mailto:virginie.leblond@rail.bombardier.com)>; Denis  
Ricard <[denis.ricard@rail.bombardier.com](mailto:denis.ricard@rail.bombardier.com)>  
**Objet :** Air Compressors Missing Oil

Denis

A week ago car 4004 ASU it was reported that a liter of oil was added. During last Saturday's PM, car 3004 ( I believe) the air compressors had no oil indicated at the tube and oil residue was spewed all over the unit and even onto the APSE. There is no certain means to determine how long the ASU's were running with no or very little oil. There is a potential of damage to the internal components. As of yet there has been no indications from any reports as to were on the unit is the oil exhausting. As a

minimum BART believes the oil may be in the descant units. BART believes both compressors should be replaced and an evaluation of the internal components performed.

Perhaps we could discuss this tomorrow

Frank

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# REPAIR REPORT

Inspection #	Date Required	Inspection Qty	1.00	Status
0000008710	03/14/2018	Accept Qty	1.00	<input checked="" type="checkbox"/> Accepted <input type="checkbox"/> Rejected <input type="checkbox"/> Exempt <input type="checkbox"/> C of C
Trigger Type	Doc # Item	Reject Qty		
Receiver	018573 0002	Customer ID	BOM006	
Part Number	Part Description	Customer Ref		
R-001044	Return BART ASU S/N 025			

**Criteria:**
**RETURNED MATERIALS**

- 1) Perform visual inspection. Identify condition of unit, damaged or missing parts.
- 2) Photograph points of interest: damage, clogged or dirt which may affect function.
- 3) Collect an oil sample and send for analysis
- 4) Perform functional test.

**Discrepancy:**
**1. REPORTED PROBLEM**

a. From customer email written February 7: "A week ago car 4004 ASU it was reported that a liter of oil was added. During last Saturday's PM, car 3004 ( I believe) the air compressors had no oil indicated at the tube and oil residue was spewed all over the unit and even onto the APSE. There is no certain means to determine how long the ASU's were running with no or very little oil. There is a potential of damage to the internal components. As of yet there has been no indications from any reports as to were on the unit is the oil exhausting. As a minimum BART believes the oil may be in the descant units. BART believes both compressors should be replaced and an evaluation of the internal components performed."

b. Green "Parts Control Tag" attached to machine and dated 2/6/2018 states "unit will not shut off"

**2. RECEIVING INSPECTION**

- a. ASU 0-101741 - S/N 025 Receipt date 03/14/18
- b. Air end S/N 5E3VDM-2016
- c. Air filters are soaked with oil and filter housing has trace oil inside of it.
- d. The testing fitting is bent upwards.
- e. Oil level ok and oil relatively dirty but commensurate with operational running.
- f. Dirt on varius parts of the compressor due to operational running and oil leak.

see photos N:/photos/R#/photos/R-001044.

**3. INTERNAL INSPECTION**

- a. The discharge valve pressure was set very low, so the unit was never able to reach the pressure at which the transducer told the drive to stop.
- b. Excessive oil carryover
- c. Dryer was disassembled and found to be oily
- d. Air end was disassembled and found to be in good shape, with two exceptions
  - 1) Oil separator element was damaged
  - 2) O-Ring under the oil return valve was damaged.
- e. Two resilient mounts were damaged

**4. HISTORY**

- a. Unit was assembled by CT and tested by MM on 04/12/2017.

**Corrective Action:**
**1. REPAIR ACTIONS**

Inspector	Matthew O.	Inspection Date	03/14/2018	cinspectREPAIR
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# REPAIR REPORT

Inspection #	Date Required	Inspection Qty	1.00	Status
0000008710	03/14/2018	Accept Qty	1.00	<input checked="" type="checkbox"/> Accepted <input type="checkbox"/> Rejected <input type="checkbox"/> Exempt <input type="checkbox"/> C of C
Trigger Type	Doc # Item	Reject Qty		
Receiver	018573 0002	Customer ID	BOM006	
Part Number	Part Description	Customer Ref		
R-001044	Return BART ASU S/N 025			

a. Required replacement of the following parts covered by warranty:

V-000891 oil / air separator element  
 V-001007 O-Ring  
 0-101435 desiccant kit, twin tower dryer  
 6-000206 resilient mount (qty 2)  
 0-101650 air filter kit  
 0-101895 air intake hose  
 9-000376 compressor oil, V-Life Premium (4L)

b. Required the following labor covered by warranty:

2 hours inspection  
 2 hours teardown  
 3 hours cleaning  
 2 hours assembly  
 1 hour testing

## 2. FINAL FUNCTIONAL TEST

a. Procedure A-ASU-032-03  
 b. Results; PASS 4/19/2018  
 c. Pump up 0-136 psi, 2 min. 45 sec.

## 3. ANALYSIS

The damaged Oil Separator element was not effective in coalescing the oil within the compressor and lead to higher than normal oil carry-over.

The misadjusted Discharge Valve and Minimum Pressure Valve (set low) caused oil to escape the compressor but be returned to the intake (via the discharge return tube). At the end of each compressor run cycle (either when the system reaches cut out pressure and the compressor stops, or the drive times out) this excess oil vented into the intake hose and down to the intake filter housing.

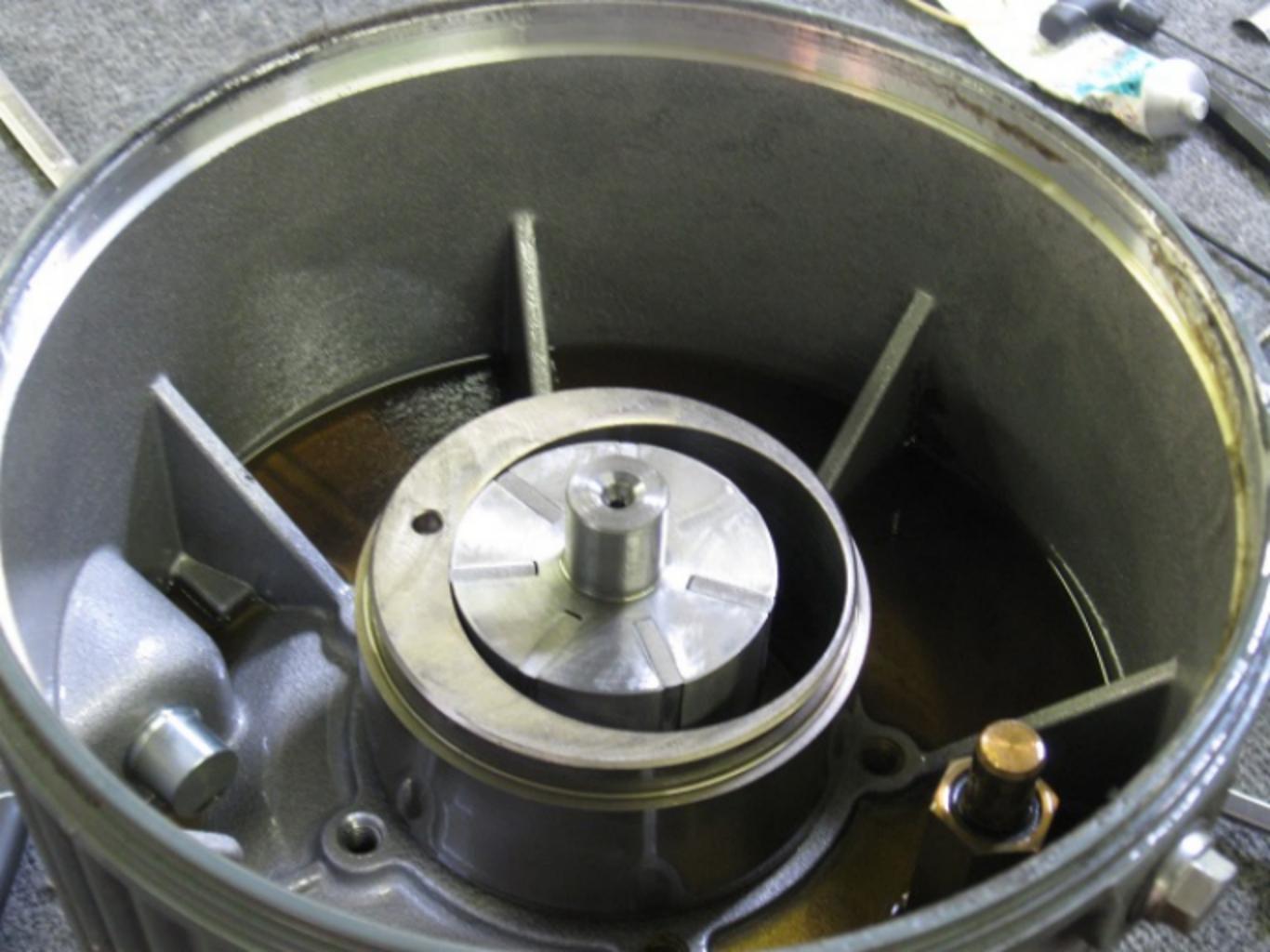
The combination of these two failures resulted in the one liter oil loss.

Inspector	Matthew O.	Inspection Date	03/14/2018	cinspectREPAIR
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2000-02-27T00:02:00Z  
P012345







# REPAIR REPORT

Inspection #	Date Required	Inspection Qty	1.00	Status
0000008709	03/14/2018	Accept Qty	1.00	<input checked="" type="checkbox"/> Accepted <input type="checkbox"/> Rejected <input type="checkbox"/> Exempt <input type="checkbox"/> C of C
Trigger Type	Doc # Item	Reject Qty		
Receiver	018573 0001	Customer ID	BOM006	
Part Number	Part Description	Customer Ref		
R-001043	Return BART ASU S/N 007			

**Criteria:**
**RETURNED MATERIALS**

- 1) Perform visual inspection. Identify condition of unit, damaged or missing parts.
- 2) Photograph points of interest: damage, clogged or dirt which may affect function.
- 3) Collect an oil sample and send for analysis
- 4) Perform functional test.

**Discrepancy:**
**1. REPORTED PROBLEM**

- a. From customer email written February 7: "During last Saturday's PM, car 3004 ( I believe) the air compressors had no oil indicated at the tube and oil residue was spewed all over the unit and even onto the APSE. There is no certain means to determine how long the ASU's were running with no or very little oil. There is a potential of damage to the internal components. As of yet there has been no indications from any reports as to were on the unit is the oil exhausting. As a minimum BART believes the oil may be in the descant units. BART believes both compressors should be replaced and an evaluation of the internal components performed."
- b. White "Parts Control" paper attached to the machine dated 2/21/2018 states "ASU pressure relief valve failed, air pressure dropped from 146psi to 134psi during testing."

**2. RECEIVING INSPECTION**

- a. ASU 0-101741 - S/N 007 Receipt date 03/14/18
- b. Air end S/N 5SV7VD-2014
- c. The unit is extremely dirty (especially the underside).
- d. Oil relatively clean and commensurate to running operations.

see photos N:/photos/R#/photos/R-001043

**3. INTERNAL INSPECTION**

- a. Unit was run and quickly recorded over-temperature alarms. Further inspection showed that the top of the oil / air cooler was clogged with enough grime that air could not pass through it.
- b. Cooling fan was noisy, indicating a possibly imminent failure
- c. Dryer was disassembled and found to be oily.
- d. Air end was disassembled and found to be in good shape.

The oil separator element appeared to have been recently replaced. The oil appeared to have been recently replaced (or a significant quantity of new oil added).

- e. Unit ran up to 149.5 psi without the pressure relief valve opening.

f. Oil analysis showed normal wear and normal fluid condition, but an abnormally high level of Silicon (128ppm vs. 25ppm limit). This could be due to silicon grease used in new compressor assembly, but could be due to containment ingress.

**4. HISTORY**

- a. Unit sold on 09/09/2015
- b. Unit initially returned for FCNs 16-001, 002, 003, 006, 007, 008, 009 on 03/20/2017. R-000978.

Inspector	Matthew O.	Inspection Date	03/14/2018	cinspectREPAIR
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# REPAIR REPORT

Inspection #	Date Required	Inspection Qty	1.00	Status
0000008709	03/14/2018	Accept Qty	1.00	<input checked="" type="checkbox"/> Accepted <input type="checkbox"/> Rejected <input type="checkbox"/> Exempt <input type="checkbox"/> C of C
Trigger Type	Doc # Item	Reject Qty		
Receiver	018573 0001	Customer ID	BOM006	
Part Number	Part Description	Customer Ref		
R-001043	Return BART ASU S/N 007			

**Corrective Action:**

1. REPAIR ACTIONS

- a. Required replacement of the following parts covered by warranty:
  - 6-000055 dryer electrical connector gasket
  - 3-000755 dryer electronics module gasket
  - V-000891 oil separator element
  - 0-101435 desiccant kit, twin tower dryer
  - 0-101760 Fan assembly
  - 9-000376 V-Life Premium Oil, 4 L
  - 9-000344 rubber bumper
  - 0-101650 air filter kit

- b. Required the following labor covered by warranty:

- 3 hours inspection
- 5 hours teardown
- 3 hours cleaning
- 5 hours assembly
- 1 hour testing

2. FINAL FUNCTIONAL TEST

- a. Procedure A-ASU-032-03
- b. Results: PASS 04/19/2018
- c. Pump up 0-136 psi, 2 min 49 sec.

3. ANALYSIS

The poor condition of the unit (exemplified by the clogged oil cooler and extremely dirty equipment surfaces) suggests that maintenance may have been lacking on this unit.

The Oil Separator element appeared to have been recently replaced. If, prior to replacement, the element was beyond its service life, it would not have been effective in coalescing the oil within the compressor and caused high oil carry-over.

The misadjusted Discharge Valve and Minimum Pressure Valve (set low) also caused oil to escape the compressor.

The combination of these issues resulted in significant oil loss.

Inspector	Matthew O.	Inspection Date	03/14/2018	cinspectREPAIR
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WEAR	NORMAL
CONTAMINATION	ABNORMAL
FLUID CONDITION	NORMAL

Machine Id

**0-61741-007 (S/N 5SV7VD)**

Component

**MATTEI GRRAA00011 Compressor**

Fluid

**V-LIFE PREMIUM (4 LTR)**

## RECOMMENDATION

No corrective action is recommended at this time. Resample at the next service interval to monitor.

## WEAR

All component wear rates are normal.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number				<b>AN22942</b>	---	---
Sample Date				<b>17 Apr 2018</b>	---	---
Machine Age	hrs			<b>3000</b>	---	---
Oil Age	hrs			<b>2400</b>	---	---
Filter Age	hrs			<b>0</b>	---	---
Oil Changed				<b>Changed</b>	---	---
Filter Changed				<b>N/A</b>	---	---
Sample Status				<b>ABNORMAL</b>	---	---

## CONTAMINATION

Elemental level of silicon (Si) above normal indicating ingress of seal material.

Iron	ppm	ASTM D5185m	>50	<b>42</b>	---	---
Chromium	ppm	ASTM D5185m	>10	<b>0.3</b>	---	---
Manganese	ppm	ASTM D5185m		<b>1.0</b>	---	---
Nickel	ppm	ASTM D5185m		<b>0.4</b>	---	---
Titanium	ppm	ASTM D5185m		<b>0.0</b>	---	---
Silver	ppm	ASTM D5185m		<b>0.0</b>	---	---
Aluminum	ppm	ASTM D5185m	>25	<b>4.5</b>	---	---
Lead	ppm	ASTM D5185m	>25	<b>0.3</b>	---	---
Copper	ppm	ASTM D5185m	>50	<b>1.4</b>	---	---
Tin	ppm	ASTM D5185m	>15	<b>0.0</b>	---	---
Vanadium	ppm	ASTM D5185m		<b>0.0</b>	---	---
White Metal	scalar	Visual	NONE	<b>LIGHT</b>	---	---
Babbitt	scalar	Visual	NONE	<b>NONE</b>	---	---

## FLUID CONDITION

The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

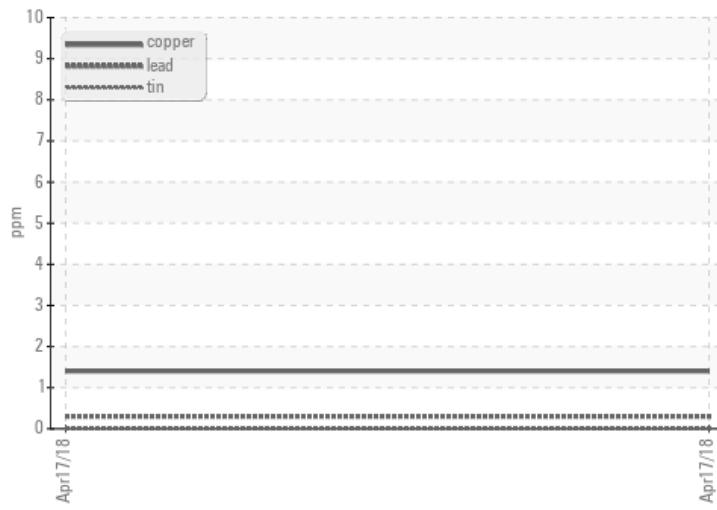
Silicon	ppm	ASTM D5185m	>25	<b>▲ 128</b>	---	---
Potassium	ppm	ASTM D5185m	>20	<b>2.0</b>	---	---
Water	%	ASTM D6304	>0.1	<b>0.051</b>	---	---
ppm Water	ppm	ASTM D6304	>1000	<b>510</b>	---	---
Silt	scalar	Visual	NONE	<b>NONE</b>	---	---
Debris	scalar	Visual	NONE	<b>NONE</b>	---	---
Sand/Dirt	scalar	Visual	NONE	<b>NONE</b>	---	---
Appearance	scalar	Visual	NORML	<b>NORML</b>	---	---
Odor	scalar	Visual	NORML	<b>NORML</b>	---	---
Emulsified Water	scalar	Visual	>0.1	<b>NEG</b>	---	---

Sodium	ppm	ASTM D5185m		<b>53</b>	---	---
Boron	ppm	ASTM D5185m		<b>1.5</b>	---	---
Barium	ppm	ASTM D5185m		<b>0.0</b>	---	---
Molybdenum	ppm	ASTM D5185m		<b>0.0</b>	---	---
Magnesium	ppm	ASTM D5185m		<b>0.0</b>	---	---
Calcium	ppm	ASTM D5185m		<b>0.0</b>	---	---
Phosphorus	ppm	ASTM D5185m		<b>1112</b>	---	---
Zinc	ppm	ASTM D5185m		<b>66</b>	---	---
Sulfur	ppm	ASTM D5185m		<b>171</b>	---	---
Acid Number (AN)	mg KOH/g	ASTM D974		<b>0.279</b>	---	---
Visc @ 40°C	cSt	ASTM D445		<b>77.91</b>	---	---

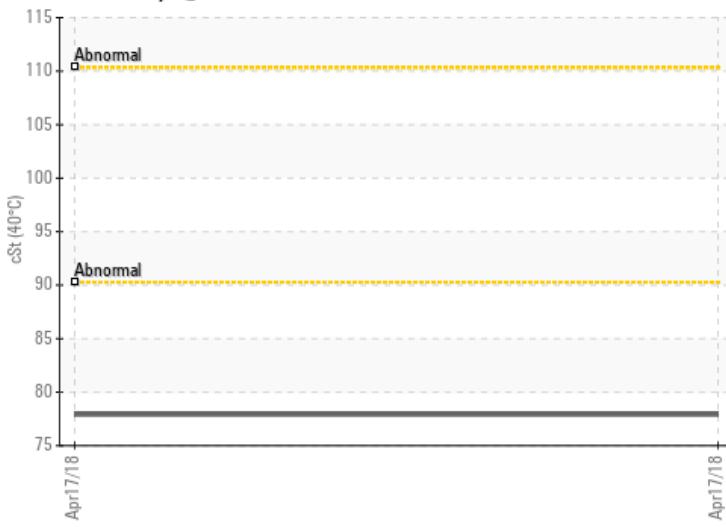
## Ferrous Alloys



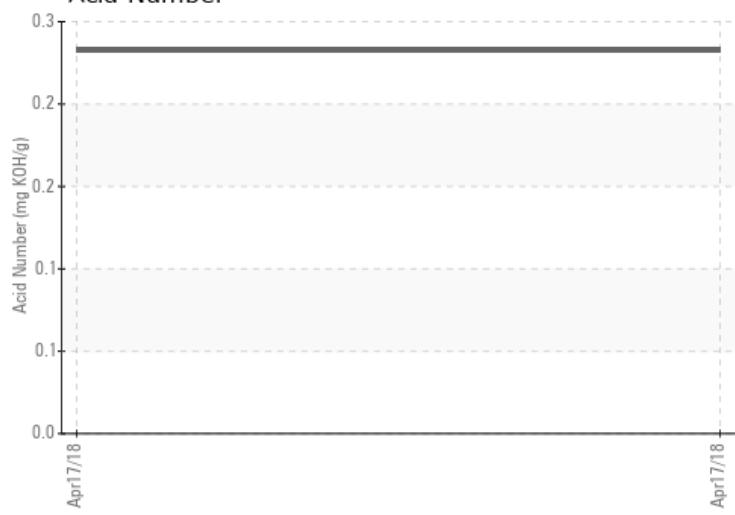
## Babbitts



## Viscosity @ 40°C



## Acid Number



Certificate L2367

### Laboratory

Sample No. : AN22942  
Lab Number : 04453434  
Unique Number : 8172191  
Test Package : IND 2

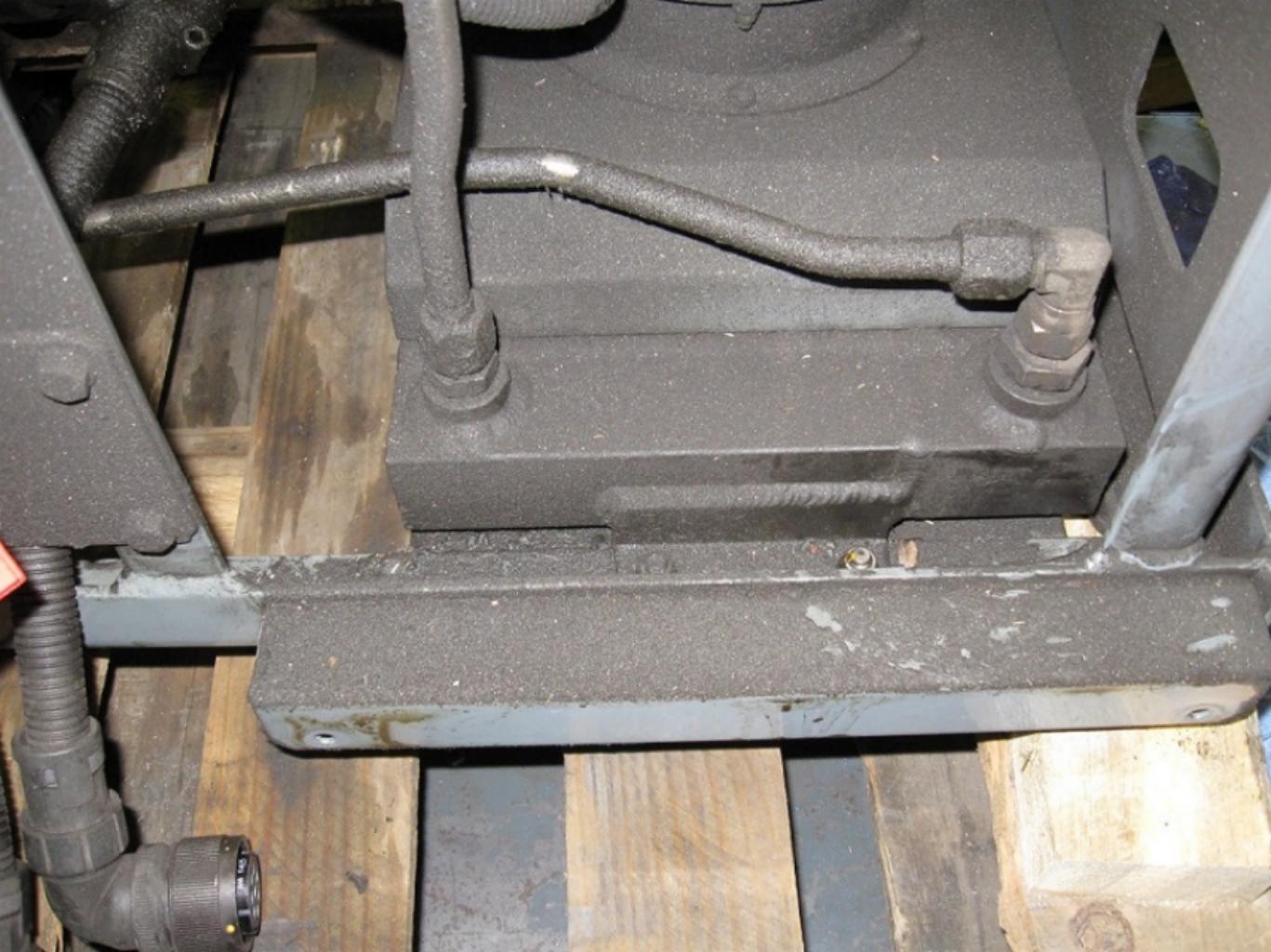
: WearCheck USA - 501 Madison Ave., Cary, NC 27513

Received : 19 Apr 2018  
Diagnosed : 20 Apr 2018  
Diagnostician : Doug Bogart

To discuss diagnosis or test data, contact Technical Support at 1-800-237-1369.  
To change component or sample information, contact Customer Service at 1-800-237-1369.

### MATTEI COMPRESSORS--OEM

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jward@matteicomp.com  
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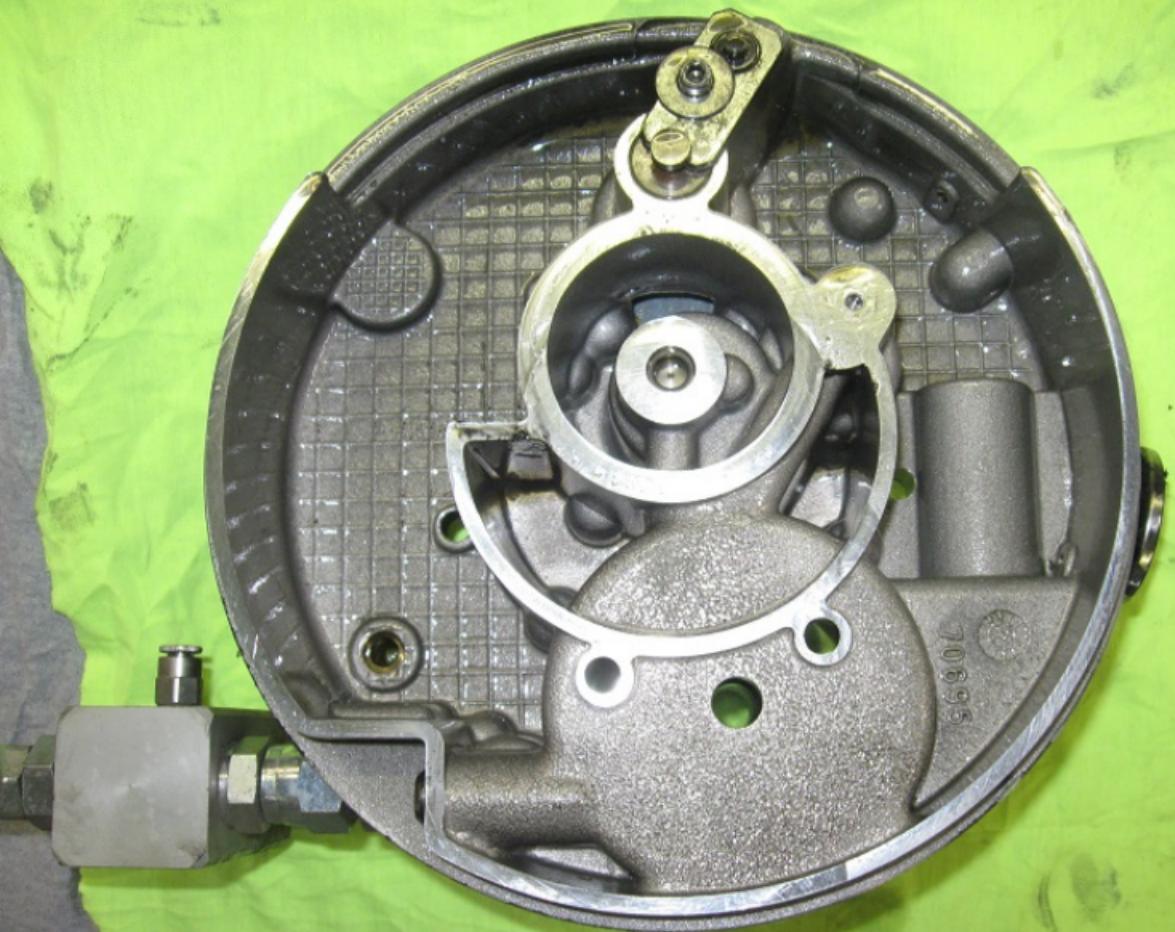












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